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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/960,282 | 09/24/2001 | Hiroshi Kondo | 862.C2390 | 4768 |

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

MUTSCHLER, BRIAN L

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,282

Applicant(s)

KONDO ET AL.

Examiner

Brian L. Mutschler

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 7, 2003 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7, 8, 10-12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) in view of Weinberg (U.S. Pat. No. 6,262,558).

Regarding claims 1, 8, 10 and 17, Simburger et al. disclose a solar battery comprising a solar cell array disposed on one side of a substrate and a power converter disposed on the opposite side of the substrate (col. 5, lines 10-15). The module is connected using a simple two wire bus (col. 3, lines 19-23). Simburger et al. further disclose connecting a plurality of solar cell power modules to form a solar cell array (col.

5, lines 22-29). Since the device of Simburger et al. uses a two wire bus and a plurality of devices can be used to form an array, the device would inherently have an input connector for collecting power from outside the device and an output connector for outputting the power. The two-wire bus also makes the device capable of being connected in parallel to another solar battery device.

The device of Simburger et al. differs from the instant invention because Simburger et al. do not disclose the use of a detector or a controller, as recited in claims 1-3 and 10-12, and a DC-DC converter, as recited in claims 7 and 16.

Weinberg discloses a solar battery having a plurality of solar cells. The device has a current detector **211** to detect the current from the solar cells (col. 10, line 51). The device further comprises a plurality of switches and a switch controller for controlling the switches to maintain the output of the solar cell array (col. 3, lines 31-41). The switches disconnect portions of the solar array to match the solar array power to the load (col. 3, line 45-48). Weinberg also discloses a DC-DC converter to convert the produced current into a current that is usable by the load (col. 2, line 23).

Regarding claims 1-3 and 10-12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use a current detector and a controller as taught by Weinberg because a current detector and controller would allow the device to match the power of the solar battery with the power requirements of the load.

Regarding claims 7 and 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of

Simburger et al. to use a DC-DC converter as taught by Weinberg because a DC-DC converter allows the power generated by the solar cells to be converted into a more usable current for the load.

4. Claims 4, 6, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as applied above to claims 1-3, 7, 8, 10-12, 16 and 17, and further in view of Uchihashi et al. (U.S. Pat. No. 5,951,785).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 1-3, 7, 8, 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose the use of a plug and receptacle connection means for the input and output connectors, as recited in claims 4 and 13, and an inverter for converting DC power to AC, as recited in claims 6 and 15.

Uchihashi et al. disclose a solar cell module having an integrated DC-AC inverter and plug **14** and receptacle connection means for connecting the modules (col. 1, lines 26-29; col. 6, lines 5-9).

Regarding claims 4 and 13, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use a plug and receptacle connection means as

taught by Uchihashi et al. because a plug and receptacle allows for easy installation of the solar cell modules.

Regarding claims 6 and 15, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use an DC-AC inverter as taught by Uchihashi et al. because a DC-AC inverter would convert the DC power generated by the solar cells to AC power, a form of power used for many applications.

5. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as applied above to claims 1-3, 7, 8, 10-12, 16 and 17, and further in view of Cowan (U.S. Pat. No. 5,569,998).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 1-3, 7, 8, 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose the use of an indicator to indicate a control state of the power converter, as recited in claims 5 and 14.

Cowan discloses a solar battery device comprising a DC-DC converter and an indicator **37** that provides an indication of the status of the power generator (col. 5, lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use an indicator as taught by Cowan because an indicator would allow the user to quickly ascertain the operating condition of the device.

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as applied above to claims 1-3, 7, 8, 10-12, 16 and 17, and further in view of Harris (U.S. Pat. No. 4,409,537).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 1-3, 7, 8, 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose connecting a plurality of the devices in a single-phase three-wire system.

Harris discloses a connection method for a plurality of solar cells wherein the solar cells are connected to a three-wire system (col. 1, line 59 to col. 2, line 15). The three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and

Weinberg to connect a plurality of devices using a three-wire system as taught by Harris because a three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

7. Claims 1-3, 6, 8, 10-12, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) in view of EP 0 807 980 A2, herein referred to as EP '980.

Regarding claims 1, 8, 10 and 17, Simburger et al. disclose a solar battery comprising a solar cell array disposed on one side of a substrate and a power converter disposed on the opposite side of the substrate (col. 5, lines 10-15). The module is connected using a simple two wire bus (col. 3, lines 19-23). Simburger et al. further disclose connecting a plurality of solar cell power modules to form a solar cell array (col. 5, lines 22-29). Since the device of Simburger et al. uses a two wire bus and a plurality of devices can be used to form an array, the device would inherently have an input connector for collecting power from outside the device and an output connector for outputting the power. The two-wire bus also makes the device capable of being connected in parallel to another solar battery device.

The device of Simburger et al. differs from the instant invention because Simburger et al. do not disclose the use of a detector or a controller, as recited in claims 1-3 and 10-12, and an inverter, as recited in claims 6 and 15.

EP '980 discloses a solar cell device comprising a solar cell module **601**, a detector **602** for detecting a voltage and a current of the solar cell module, a controller **603**, and an inverter **604** (p. 7, lines 30-36). The controller **603** controls the inverter **604** "depending on an output detected by the detector" (p. 7, lines 32-33). The inverter **604** converts the power generated by the solar cell module into a form useable by the load circuit **605**.

Regarding claims 1-3 and 10-12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use a detector and controller as taught by EP '980 because the detector and controller provides a greater degree of control over the device.

Regarding claims 6 and 15, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use an inverter as taught by EP '980 because the inverter converts the energy generated by the solar cells into a useable form for the load.

8. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 1-3, 6, 8, 10-12, 15 and 17, and further in view of Uchihashi et al. (U.S. Pat. No. 5,951,785).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 1-3, 6, 8, 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose the use of a plug and receptacle connection means for the input and output connectors, as recited in claims 4 and 13.

Uchihashi et al. disclose a solar cell module having an integrated DC-AC inverter and plug 14 and receptacle connection means for connecting the modules (col. 1, lines 26-29; col. 6, lines 5-9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to use a plug and receptacle connection means as taught by Uchihashi et al. because a plug and receptacle allows for easy installation of the solar cell modules.

9. Claims 5, 7, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 1-3, 6, 8, 10-12, 15 and 17, and further in view of Cowan (U.S. Pat. No. 5,569,998).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 1-3, 6, 8, 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose the use of an indicator to indicate a control state of the power converter, as recited in claims 5 and 14.

Cowan discloses a solar battery device comprising a DC-DC converter and an indicator **37** that provides an indication of the status of the power generator (col. 5, lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to use an indicator as taught by Cowan because an indicator would allow the user to quickly ascertain the operating condition of the device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to use a DC-DC converter as taught by Cowan because the type of converter used in to convert the power generated by the solar cells depends on the load being powered, certain loads require AC while other loads require DC.

10. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 1-3, 6, 8, 10-12, 15 and 17, and further in view of Harris (U.S. Pat. No. 4,409,537).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 1-3, 6, 8, 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose connecting a plurality of the devices in a single-phase three-wire system.

Harris discloses a connection method for a plurality of solar cells wherein the solar cells are connected to a three-wire system (col. 1, line 59 to col. 2, line 15). The three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to connect a plurality of devices using a three-wire system as taught by Harris because a three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

Response to Arguments

11. Applicant's arguments filed August 7, 2003 have been fully considered but they are not persuasive.
12. Applicant has argued the rejection of claims 1-9 under 35 U.S.C. 103 over Simburger et al. as the primary reference and Weinberg as the teaching reference on the grounds that "the combination of Simburger and Weinberg does not teach all the structural elements of the rejected claims, and in particular does not teach at least the

structural element of a controller structures to control output of a power converter when the current value detected by said detector exceeds a threshold value which is predetermined based on a maximum rated current value of said output connector or a current path of the output connector" (see page 8 of Applicant's response). This argument is not persuasive because the use of the term "structured" does not change the recited intended use of the device into a structural limitation. Furthermore, the controller of Weinberg is capable of achieving the desired result (see Applicant's comments regarding the controller of Weinberg on page 9 of the response). The structural elements in the device of Weinberg are interconnected, and consequently, controlling one element, e.g., the output of the solar cells, controls the output of the power converter. In other words, by controlling what goes into the converter, the controller controls what comes out of the converter.

13. Further regarding the controller of Weinberg, Applicant has cited *In re Mills* regarding combination of references and the need for the references to suggest the combination. The motivation to use the controller of Weinberg in the device of Simburger et al. is the greater amount of control over the device the controller will provide. The references must teach the desirability of the resulting device, not the intended use of the device.

Conclusion

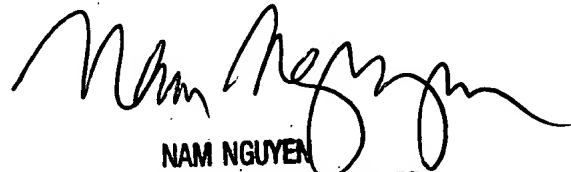
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (703)

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305-0180. The examiner can normally be reached on Monday-Friday from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

blm
September 11, 2003